

CLAIMS

1. A method for capture of one or more antibodies from a liquid, which method comprises contacting said liquid with a chromatography resin comprised of a support to which multi-modal ligands have been immobilised to adsorb the antibodies to the resin, wherein each multi-modal ligand comprises at least one cation-exchanging group and at least one aromatic or heteroaromatic ring system, in which system the ring-forming atoms are selected from the group consisting of carbon (C), sulphur (S) and oxygen (O) atoms.
2. A method according to claim 1, wherein the ring-forming atoms are selected from the group consisting of carbon (C) and sulphur (S) atoms.
3. A method according to claim 2, wherein the ring-forming atoms are carbon (C) atoms.
4. A method according to any one of claims 1-3, which is followed by one or further purification steps.
5. A process for the purification of one or more antibodies from a liquid, which process comprises contacting said liquid with a first chromatography resin comprised of a support to which multi-modal ligands have been immobilised to adsorb the antibodies to the resin, wherein each multi-modal ligand comprises at least one cation-exchanging group and at least one aromatic or heteroaromatic ring system; adding an eluent to release the antibodies from the resin; and contacting the eluate so obtained with a second chromatography resin.
6. A process according to any one of the preceding claims, wherein the liquid contacted with the multi-modal chromatography resin is a cell culture liquid or a fermentation broth.
7. A process according to claim 5 or 6, wherein the ring-forming atoms of the aromatic or heteroaromatic ring system of the multi-modal ligands are selected from the group consisting of carbon (C), sulphur (S) and oxygen (O) atoms.
8. A process according to any one of the preceding claims, wherein the cation-exchanging group of the multi-modal ligands is a weak cation exchanger.
9. A process according to any one of the preceding claims, wherein the second chromatography step is selected from the group that consists of ion exchange chromatogra-

phy; hydrophobic interaction chromatography (HIC); immobilised metal affinity chromatography (IMAC); and affinity chromatography.

10. A process according to claim 9, wherein the second chromatography step is ion exchange chromatography.

5 11. A process according to any one of the preceding claims, wherein the second chromatography step is anion exchange chromatography.

12. A process according any one of the preceding claims, wherein the second chromatography step is multimodal anion exchange chromatography.

10 13. A process according to any one of the preceding claims, wherein antibodies are recovered from the flow-through of the second chromatography resin.

14. A process according to any one of claims 1-12, wherein antibodies and/or impurities are eluted from the second chromatography resin.

15. A process according to any one of the preceding claims, wherein the antibodies are monoclonal antibodies.

15 16. A process according to any one of claims 1-14, wherein the antibodies are polyclonal antibodies.

17. A method for capture of one or more antibodies from a liquid, which process comprises contacting said liquid with a chromatography resin to adsorb the antibodies to the ligands, which resin is multimodal and comprises a support to which ligands have
20 been immobilised, wherein the resin comprises cation-exchanging groups and aromatic or heteroaromatic ring systems present on the same or different ligands, in which systems the ring-forming atoms are selected from the group consisting of carbon (C), sulphur (S) and oxygen (O) atoms.

18. A process for the purification of one or more antibodies from a liquid, which process
25 comprises contacting said liquid with a first chromatography resin to adsorb the antibodies to the ligands, which resin is multimodal and comprises a support to which ligands have been immobilised, wherein the resin comprises cation-exchanging groups and aromatic or heteroaromatic ring systems present on the same or different ligands; adding an eluent to release the antibodies from the resin; and contacting the
30 eluate so obtained with a second chromatography resin.

19. A kit for the purification of one or more antibodies in a liquid, which kit comprises in separate compartments a first chromatography column packed with a chromatography resin, which resin is multimodal and comprises a support to which ligands have been immobilised, wherein cation-exchanging groups and aromatic or heteroaromatic ring systems are present on the same or different ligands; a second chromatography column packed with a chromatography resin; one or more buffers for adsorption and or elution of antibodies; and written instructions that teaches the purification of antibodies in a two-step process.
20. A kit according to claim 19, wherein the ring-forming atoms of the aromatic or heteroaromatic ring system of the multi-modal ligands are selected from the group consisting of carbon (C), sulphur (S) and oxygen (O) atoms.
21. A kit according to claim 19 or 20, wherein the first chromatography column is a sterile column.
22. A kit according to any one of claims 19-21, wherein the first chromatography column is a disposable column.
23. A disposable chromatography column for the purification of antibodies, which column comprises a multi-modal chromatography resin comprising cation-exchanging groups and aromatic and/or heteroaromatic ring systems on the same or different ligands.
24. A disposable chromatography column for the purification of antibodies, which column comprises a multi-modal chromatography resin, wherein each ligand comprises at least one cation-exchanging group and at least one aromatic or heteroaromatic ring system.
25. A disposable column according to claim 23 or 24, wherein the ring-forming atoms of the aromatic or heteroaromatic ring system of the multi-modal ligands are selected from the group consisting of carbon (C), sulphur (S) and oxygen (O) atoms.